Libby Asbestos Site
Operable Unit 4
Remedial Response Work Plan

I. Introduction and Background

In November 1999, the EPA Region VIII Superfund Program initiated emergency response actions in Libby, Montana. Response activities focused on rapidly assessing the nature of the problem and taking immediate actions to eliminate high-priority sources of Libby asbestos. In February 2002, as the scope of issues in Libby became clear, the Libby Asbestos Site was proposed to the Superfund National Priority List to ensure and demonstrate EPA's long-term commitment to addressing health risks at the site. This document briefly describes EPA's plan for continuing and completing response actions for Operable Unit 4 (OU4), which is the residential and commercial portion of Libby. Removal of vermiculite attic insulation, pursuant to the Action Memorandum dated May 2002, is also part of OU4. Other areas, such as former vermiculite processing plants and the mine itself, are being addressed as separate OUs.

II. Current Status

EPA sampled approximately 450 residential and commercial properties through the end of 2001. Sampling was focused on areas surrounding the former vermiculite processing plants and other obvious source areas. Sampling included ambient air sampling, indoor dust sampling, soil sampling, and the use of personal air monitors. The results of this sampling led to several general conclusions:

- Exposures appear limited to specific areas or properties where a source of Libby asbestos is still present and that source is directly disturbed. Ambient air conditions, though likely a problem in the past, do not appear to present a significant health risk today.

- There are numerous sources of Libby asbestos still present throughout the community. These sources include vermiculite insulation and vermiculite waste products resulting from former mining and milling operations. These products and wastes were used randomly by individual property owners throughout the community and surrounding area. Each property, depending on its unique history, may contain one or more "primary"sources, such as visible vermiculite used as a soil amendment or vermiculite attic insulation; one or more "secondary" sources such as contaminated soils or indoor dust; a combination of primary and secondary sources; or neither primary or secondary sources. The random nature of the contamination means that every property in the Libby area will require at least minimal screening. The investigation may be extended to Troy, MT if conditions warrant.

- Disturbance of "primary" source materials will likely result in unacceptable exposures

under a variety of conditions.

- Disturbance of "secondary" source materials may lead to unacceptable exposures, depending on several factors. Further study may be necessary.

- EPA should take immediate actions to find and eliminate exposures that could clearly cause unacceptable risks, such as removal of primary sources, and should continue to evaluate and investigate the need to address secondary sources. This decision is documented in the May 2002 Action Memo.

Using this information, EPA began systematic response activities for OU4 in May 2002. Two complementary efforts are currently underway:

Residential/Commercial Cleanup. Using existing sampling results, approximately 50 properties were targeted for immediate cleanup this calendar year. This cleanup is progressing.

Contaminant Screening Study. EPA is conducting a systematic screen (called the Contaminant Screening Study – CSS) of approximately 3000 additional properties in the Libby area that have never been sampled. The CSS will be complete by December 2002. This information, coupled with previous sampling results, will provide EPA with a complete picture of:

1. The exact number of properties containing primary sources (including vermiculite attic insulation) and requiring immediate cleanup. These properties will be added to the "primary cleanup list" upon discovery.

2. The exact number of properties containing secondary sources or other circumstances requiring additional investigation. These properties will be investigated further through 2003.

3. Properties likely requiring no further action.

III. Primary Cleanups vs. Secondary Cleanups

As discussed above, EPA has segregated contamination and cleanups into primary and secondary categories.

Primary Cleanups. Primary cleanups are those addressing properties with primary sources, such as vermiculite attic insulation. These properties will be addressed first because they present the most risk and, in general, the risk is more obvious. EPA has already made the decision to clean these properties up (Action Memo May 2002) and has started this work already (the 50 properties targeted for cleanup in 2002). EPA estimates there will be approximately 500-800 properties in this category, though the exact number will not be known until the CSS is complete at the end of this year. EPA estimates that properties can be cleaned up by the end of 2004.

Secondary Cleanups. Secondary cleanups are those addressing properties with secondary

sources, such as low-level soil contamination. These properties will be addressed second because they likely present less risk and will require more information for sound risk-based decision making. In essence, EPA must determine "how much asbestos is too much" for these properties through the use of the Superfund decision making pipeline. This will require additional improvement in asbestos analytical methods, additional sampling on a per property basis, and development of a site-specific risk assessment. This investigation work will proceed while primary cleanups are occurring and should take about two years. This overlapping approach will allow EPA to proceed from primary to secondary cleanups with no break in cleanup work.

IV. Site Time Line

A planning time line/flow chart for remaining cleanup and investigation work is attached. The schedule will be refined as information regarding cleanup becomes more clear. This chart shows detail only for basic steps in the process and current actions are emphasized – it does not show detail for several individual steps, such as completion of a site-specific risk assessment. Highlighted boxes are discussed below:

- Non-Typical Properties

There are several properties in the study area which are not typical commercial or residential properties, but which may contain Libby asbestos and may cause exposure to Libby residents or visitors. These include such wide ranging properties as a golf course, a lumber mill, ball fields, river banks, road sides, and vacant lots. These areas may be more complicated to investigate and may require more extensive cleanup efforts.

- Performance Evaluation (PE) Study/Interim Soil Test Materials (ISTMs)

Asbestos analytical techniques are controversial and often difficult to interpret. In many cases, widely used analytical techniques are unsuitable for risk assessment or even screening. As EPA develops and/or uses less widely used or accepted analytical techniques, it is necessary to develop standards with known concentrations in various media to test the efficacy of the methods. The first step was the preparation of several interim soil test materials (ISTM's) to test the efficacy of methods used for soil screening in 2002. Ultimately, the PE Study will evaluate a range of analytical techniques. The results will be used to plan future sampling which may form the basis of numerically-based risk management decisions.

- Cost/Benefit Analysis

Throughout the entire investigation and cleanup process, EPA will employ a cost/benefit approach. For example, if it is simply cheaper or more efficient to clean up a property than to investigate it further, EPA will strongly consider this in decision making. This rationale will be employed at the conclusion of the CSS - if the number of properties with indications of secondary sources is small, it may make more sense to simply clean these properties up than to investigate them in more detail. The same approach will be carried through to specific details of

individual properties as well.

- Risk Assessment

Region VIII considers current EPA risk assessment tools inadequate for making sound risk estimates, and hence risk management decisions, in Libby. Region VIII is working to advance national asbestos risk assessment methodology in conjunction with EPA Headquarters and is also pursuing site specific investigations. The results of the risk assessment will be used to set clean up standards for soil and possibly other media. Even if all properties are cleaned up without extensive investigation based on cost/benefit considerations, development of a sound site specific baseline risk assessment and publication of a ROD is necessary and required.

- Development of Operations & Maintenance (O&M) Plan and Institutional Controls (IC's)

It is impossible to sample every possible spot in Libby for asbestos, particularly when vermiculite was used as fill underground. For this reason, EPA is only seeking to address contamination where it is likely to be present and likely to be disturbed. This approach will mitigate the vast majority of risk in Libby in the quickest manner possible. However, it is recognized that some occurrences of Libby asbestos will be missed. Residents may encounter vermiculite at depth, or in other situations, after EPA's cleanup is complete. Even short duration exposures to such sources may be unacceptable. A system of community education and institutional controls for addressing these situations is imperative. EPA is beginning to develop such a system now and will work with State and local government to develop an O&M approach for the site which is widely accepted and complements the cleanup approach.

- Focused Feasibility Study (FFS)/Record of Decision (ROD).

Only a minimal feasibility study is contemplated. This is due to the limited amount of options that are available for dealing with asbestos and to the planning currently being implemented by the Region VIII Removal Program. For this reason, the feasibility study will be narrow in scope and focused on more efficient ways to conduct cleanup, using the cleanup approach currently being implemented as a baseline.

- Completion of "Primary" and "Secondary" Cleanups

At this point, the exact number of properties in each category is unknown. More exact numbers will be available following completion of the CSS. Also, EPA has limited experience in the remediation of residential properties with multiple sources of asbestos. Therefore, cleanup time frames can only be estimated at this point. Based on current estimates of the number of properties with primary sources, EPA estimates primary cleanups can be completed in approximately two full calendar years (not counting this calendar year, during which only 50 cleanups are scheduled). This would eliminate most of the risk in Libby by the end of 2004. Less is known about the number of properties containing secondary sources. However, EPA estimates that one additional year will be required to clean up secondary properties (done by the end of 2005), though an additional year may be required if the number of properties is higher

than expected or if non-typical properties prove more difficult than anticipated (done by 2006). Completion of secondary cleanups would be the end of significant EPA cleanup activities in Libby proper.

V. OU4 Financial Requirements

Estimated OU4 financial requirements by quarter for FY 2003, 2004, and 2005 are attached. These estimates must be considered very preliminary due to the unique nature of the work being planned and the uncertainty regarding cleanup scope and costs.

2003 Libby Asbestos Funding Needs

FY/Quarter	Amount	Task	Work to be accomplished/justification	Cost Savings Measures
2003/01	$17,000,000*	"Primary" Cleanups (may transition to remedial action)	Removal of Zonolite insulation Removal of outdoor source materials Associated indoor cleaning/analytical support *Cost estimate is very preliminary.	See "A" and "B"
	$200,000	Prepare Bid Package	Funding is to prepare design/ bid package/IGCE for a "low-bid" contract for "primary" removals.	See "A"
	$900,000	Continue RI	Funding is for investigating properties that fail initial screen but require additional risk-based data to make cleanup decisions - potential secondary cleanups.	See "C"
	$600,000	Risk Assessment	Conduct site specific studies of the toxicity of Libby asbestos. Current risk models may not adequately characterize risk.	
2003/02	$600,000	Continue RI	Funding is for sampling homes that fail initial screen but require additional risk-based data to make cleanup decisions. Primary driver is the cost of asbestos analysis using electron microscopy.	See "C"
	$1,000,000	Begin Investigation of Mine	Funding is to begin investigation of mine site and other lower priority areas.	
	$200,000	Site Support	Funding is for: Management assistance for MTDEQ Community Involvement/Local Info Center Support CAG/TAG	
2003/03	$200,000	Finish RI	Funding is to complete RI and prepare RI report.	
	$200,000	Risk Assessment	Funding is to complete and prepare baseline risk assessment.	
2003/04	$200,000	FS	Funding is to conduct and prepare FS.	

Total 2003/01 = $18,700,000
Total 2003/02 = $1,800,000
Total 2003/03 = $400,000
Total 2003/04 = $200,000

Total 2003 = $21.1 million*

* Includes $1 million for RI at mine site, which is OU3. All other costs OU4.

Major Cost Savings Measures - 2003

A. Contracting approach for residential/small commercial removals. To date, EPA's Removal Program conducted emergency response activities using contracting resources under a pre-placed IAG with the Volpe National Transportion Center. Work is performed using a delivery order type scheme allowing for rapid response on cost plus basis. After this construction season, the plan is to shift cleanup work to a site-specific open-bid contract, which should lead to cost-savings to the government. We are currently evaluating the most appropriate contracting approach. Funding is needed 2003/1 to facilitate preparation of bid package and contracting support. Cost savings are contingent upon the "low-bid" but could be substantial.

B. Local landfill. EPA is working with Lincoln County to develop a local landfill cell for asbestos waste - some funding in 2002 was dedicated to this crucial infrastructure. This will accomplish several objectives. (1) It will provide for year around cleanup operations, minimizing mobilization/demobilization costs and down-time. (2) It will minimize transportation and disposal costs. (3) As an integral part of an O&M plan, it will provide a repository for asbestos material found in the future.

C. RI approach. EPA developed a cost efficient screening approach for the bulk of residential and small commercial properties in Libby. The approach builds upon the results of sampling performed to date and uses a prioritization scheme to limit future analytical costs. In the past, a home may have undergone up to four types of sampling and analysis to characterize possible sources of asbestos. Approximately 500 homes have been sampled in this manner to date, at a cost of approximately $2,000,000. The remaining 3000 properties in Libby will be now be screened using the new approach, at a total cost of about $3,500,000, representing a potential total savings of about $2800 per house.

2004 Libby Asbestos Funding Needs

FY/Quarter	Amount	Task	Work to be accomplished/justification
2004/01	$100,000	Site Support	Funding is for: Community Involvement/Local Info Center Support/CAG
2004/02	$750,000	RI/FS	Funding is to complete RI and FS for mine and Rainy Creek drainage
	$200,000	Remedial Design	Funding is to prepare design/ bid package/IGCE for a "low-bid" contract for "secondary" cleanups.
	$50,000	TAG	Funding is to continue funding of TAG grant.

Total 2004/01 = $100,000
Total 2004/02 = $1,000,000
Total 2004/03 = $0
Total 2004/04 = $0

Total 2004 = $1.1 million

Planned Libby Cleanup Timeline